REMARKS

This amendment responds to the Office Action which was mailed on March 27, 2006. In the claims, Claims 29-34 have been canceled in response to a restriction requirement, and Claims 5, 7, 17, 19, 23 and 24 have been amended to correct inadvertent errors. Claims 1-28 remain in the case. In light of the remarks set forth below it is respectfully submitted that Claims 1-28 are in condition for allowance. Applicant requests a favorable reconsideration of this application in light of the amendment and the remarks set forth below which constitute a full and complete response to the outstanding Office Action.

In response to a telephonic restriction requirement, applicant provisionally elected Group I, Claims 1-28, drawn to a decontaminant composition. Applicant hereby affirms this election without traverse. Non-elected Claims 29-34 have been canceled. No amendment of inventorship is required as a result of the cancellation of these claims.

Claims 1-28 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Elashvili (U.S. Pat. No. 6,897,032) in view of Favre-Bulle et al. (U.S. Pat. No. 5,616,498), Akkara et al. (U.S. Pat. No. 5,169,554), and Pillar et al. (U.S. Pat. No. 6,922,615). It has been asserted that Elashvili teaches OPH and OPAA enzymes capable of decontaminating chemical warfare agents. Favre-Bulle was relied on as teaching dehalogenase is capable of decontaminating impurities in surfactants, and further as teaching ammonium salts to be present during production of their decontaminant. Akkara was relied on as teaching that DFPase enzyme has detoxifying activity, and that a buffer system was disclosed which functions to control pH. Finally, Pillar was relied upon as teaching fire fighting agents such as water, foam, and foaming agents. It has

been asserted that it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited prior art references of Elashvili, Akkara, Favre-Bulle and Pillar to provide for a decontaminant composition. However, none of the prior art cited makes reference to development of a catalyst-based universal decontaminant formulation. Therefore, it is respectfully submitted that this argument is untenable, that a prima facie case of obviousness has not been established, and that the rejections should be withdrawn.

It is well established law that in order to establish a prima facie case of obviousness the prior art references must teach each and every element of the claims and that, in addition, there must be some suggestion or motivation in the prior art for combining the elements/features described in the references in order to create the claimed invention. It is respectfully submitted that a proper case for obviousness has not been made here. More particularly, while applicant concedes that all of the elements of the claimed decontaminant composition are individually in the public domain, none of the cited prior art provides any suggestion or motivation for making the particular combination of elements claimed in applicant's decontaminant composition. In fact, the prior art cited is not even directed towards catalytic decontamination formulations, but rather, uses the "well-known" elements to solve other unrelated problems.

For example, Elashvili has been relied on as "teaching OPH and OPAA enzymes capable of decontaminating chemical warfare agents." However, while it is well known that both OPH and OPAA enzymes are useful for bio-catalytic decontamination of chemical warfare agents, Elashvili actually teaches combining OPH and OPAA enzymes with PEF enzyme in order to *detect* the presence of breakdown hydrolytic products from

organophosphorus compounds, and not for decontamination purposes. There is no suggestion to combine both OPH and OPAA for decontamination purposes; rather Elashvili combines OPH and OPAA with PEF enzyme in order to provide a method for detecting organophosphorus chemical agents.

Furthermore, even if Elashvili did suggest the combination of OPH and OPAA as a decontamination formulation, there is no suggestion in the prior art for combining these enzymes with the other elements in applicant's claims. For example, Favre-Bulle was relied on to "teach dehalogenase is capable of decontaminating impurities in surfactants." However, Favre-Bulle does not suggest that dehalogenase enzyme can be combined with OPH and OPAA and the other claimed elements as part of a chemical agent decontamination formulation. In contrast, Favre-Bulle teaches that microorganisms or the enzymes they produce can be used for purifying solutions of amino acids. In column 1, lines 7-12, Favre-Bulle states their invention relates to "removing contaminating trace amounts of dihalocarboxylic acids or salts thereof from aqueous solutions of amino acids or amino acid derivatives by treating such solutions with a minor amount of either a microorganism producing an enzyme specific for the decomposition of dihalocarboxylic acids or salts thereof, or with such enzyme, per se." In column 1, lines 54-56, Favre-Bulle states "WO-93/20,223 describes decomposing the haloalkanoic acids present as impurities in surfactants by contacting same with a dehalogenase enzyme." Therefore, Favre-Bulle teaches that dehalogenase enzyme can be used for decomposing haloalkanoic acid impurities in surfactants. No mention is made of the potential of dehalogenase to react with sulfur mustard (mustard gas), which is its primary function in applicant's claimed decontaminant formulation. There simply is no teaching or suggestion that

dehalogenase enzyme can be combined with OPAA and OPH and/or the other elements in applicant's claims in a decontaminant formulation for detoxifying chemical warfare agents.

In addition, Favre-Bulle was relied on to "teach ammonium salts to be present during the production of their decontaminant, see column 4, line 30." First of all, Favre-Bulle is not a "decontaminant" in the same sense as applicant's invention. It does not address decontamination of chemical warfare agents or related materials. As described in the foregoing, Favre-Bulle teaches using dehalogenase enzyme to decompose impurities in surfactants, not to decontaminate chemical warfare agents. In contrast, applicant's claims include quaternary ammonium salts which applicants found to increase the mustard agent hydrolysis rate and to be compatible with OPA, OPAA, and DFPase enzymes. The fact that Favre-Bulle teaches culturing certain microorganisms in a medium including $(NH_4)_2SO_4$ does not teach or suggest using quaternary ammonium salts with OPA, OPAA, and DFPase enzymes in a chemical agent decontamination solution, and it certainly also does not suggest using the preferred embodiment of dodecyldimethyl (3-sulfopropyl) ammonium hydroxide salt. Therefore, based on the teachings of Favre-Bull the use of quaternary ammonium salts was not suggested and would not have been obvious in a chemical warfare agent decontaminant formula.

In addition, Akkara was relied on to teach DFPase has detoxifying activity. It is well known, as taught in Akkara, that DFPase enzyme has some activity in hydrolyzing chemical warfare agents. However, here again there is no teaching or suggestion in Akkara that DFPase enzyme should be combined with OPA, OPAA, dehalogenase enzyme, quaternary ammonium salts, and a pH control reagent in order to obtain a

catalytic-based decontaminant formulation providing near universal decontamination capability. That is, applicants have discovered a novel formulation which is capable of decontaminating G-type, V-type, and sulfur mustard type chemical warfare agents, as well as related organophosphorus-based hazardous industrial chemicals. Furthermore, applicant's novel formulation does so without the elements or components of the formulation having any interactions which reduce their overall decontamination effectiveness.

Finally, Pillar was relied on as teaching fire-fighting agents such as water, foam, and foaming agents. Pillar teaches these substances in their usual application as fire-fighting agents which can be dispensed from the turret of various fire-fighting vehicles. Here again, Pillar provides no suggestion of using these agents in chemical warfare agent decontamination formulation. The fact that fire-fighting substances are well known and used in the fire-fighting field as taught by Pillar is not disputed. However, Pillar is an entirely unrelated art and makes no mention or suggestion that fire-fighting foams can be combined with enzymes to create applicant's decontaminant formulation for chemical warfare agents or related compounds.

It has been asserted that it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited prior art, all cited to provide for a decontaminant composition. It was also asserted that applicant's enzymes and other compounds (ammonium salt, and fire fighting agents) are combinable for the same purpose. As discussed in the foregoing, it is respectfully submitted that this argument is untenable and should be withdrawn. Although the individual elements of the claimed invention are mentioned in the various prior art cited, there is no suggestion or motivation

for the combination claimed in the present invention, and in fact, most of the prior art cited is not even directed toward the art of toxic chemical agent decontamination. A determination of obviousness must involve more than indiscriminately combining prior art; a motivation or suggestion to combine must exist. Applicant's are the first to conceive of the unique combination of OPH enzyme, OPAA enzyme, DFPase enzyme, dehalogenase enzyme, quaternary ammonium salt, and a pH control reagent. In addition, providing a dry powder form for storage which can later be mixed with water, adding a foaming reagent or firefighting agent or the other additives recited in the dependent claims, is also not suggested by the prior art cited.

In summary, Claims 1-28 remain in the case and based on the foregoing should be considered patentable over the prior art cited and in condition for allowance. Accordingly, it is respectfully submitted that Claims 1-28 are patentable and in condition for allowance. Early reconsideration and withdrawal of the rejections is earnestly solicited, as is allowance of the claimed subject matter.

Respectfully submitted,

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DATE

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